EQUITABLE RESILIENCE

June 11-12, 2019, Long Lounge (Bldg. 7-429)
Organized by the Norman B. Leventhal Center for Advanced Urbanism
Supported by a National Science Foundation Conference Grant (NSF-19-032)

Equitable Resilience: A Necessary and Under-investigated Aspect of Sustainable Urban Systems

Equitable Resilience brings together research on urban design in the context of environmental stresses with research on the social distribution of those stresses and responses. Research on Equitable Resilience makes an important contribution to the study of Sustainable Urban Systems (SUS).

MIT's Norman B. Leventhal Center for Advanced Urbanism (LCAU) is hosting an NSF-Funded Summer 2019 workshop on four convergent and issue-oriented themes to integrate resilience and equity in metropolitan planning and design. Our aim is to go beyond acknowledging the linkages between resilience and equity, and toward conceptual and analytical design frameworks for strengthening those linkages.

The workshop brings together scholars from architecture, urban planning, urban design, building technology and related fields to examine principles and dynamics of equitable resilience. The four workshop sessions will analyze gaps and linkages between: 1) urban ecology, society, and resilient design; 2) equitable processes of planned relocation; 3) equitable access to urban information, technology, and resources; and a summary panel on 4) convergence between equitable resilience and sustainable urban systems. The workshop will employ a network-of-networks approach for knowledge exchange and dissemination.

Each session has several themes that will be framed by discussion leaders. Discussion groups will then seek to identify: 1) the most pressing and promising research issues; 2) exciting ideas and opportunities for collaborative research; and 3) ways to develop and test these ideas through planning and design.

DETAILED AGENDA: MIT Equitable Resilience Workshop

11-June

08:30 – 09:00 Registration and Breakfast

09:00 – 09:20 Opening Remarks
James Wescoat, MIT and Cynthia Chen, NSF

09:20 – 12:00 Session 1: Urban Ecology, Society, and Resilient Design
09:20 – 09:45 Framing by Larry Vale, Miho Mazereeuw & Jim Wescoat
09:45 – 11:30 Breakout Table Discussions (3+):
- Equitable resilience theory and practice (LV)
- Multi-hazard vulnerability and preparedness (MM)
- Political ecology of design: prospects, limits & alternatives (JW/KG)

11:30 – 12:00 Report Out

12:00 – 13:00 Lunch and Network-of-Networks Discussion

13:00 – 16:00 Session 2: Equitable Principles and Processes of Voluntary Relocation
13:00 – 13:30 Framing by Balakrishnan Rajagopal, Brent Ryan, Anne Spirn & Janelle Knox-Hayes
13:30 – 15:30 Breakout Table Discussions (3+):
- Principles and standards for relocation – Nansen and beyond (Steil)
- Climate change, coastal retreat, and human resettlement (BR)
- Comparative research on inter- and intra-urban relocation (AS/JKH)

15:30 – 16:00 Report Out

12-June

08:30 – 09:00 Registration and Breakfast

09:00 – 09:10 Recap/Agenda
James Wescoat, MIT

09:10 – 12:00 Session 3: Equitable Access to Resilient Technologies, Data, Space & Resources
09:10 – 09:30 Framing by Sarah Williams, Sheila Kennedy, Alan Berger & Rafi Segal
09:30 – 11:30 Breakout Table Discussions (3+):
- Access to data (SW)
- Access to technology (SK)
- Access to space and resources (AB/RS)

11:30 – 12:00 Report Out

12:00 – 13:00 Lunch and Network-of-Networks Discussion

13:00 – 16:00 Session 4: Convergence of Equitable Resilience and Sustainable Urban Systems
13:05 – 13:30 Framing by Les Norford, Mary Anne Ocampo & Justin Steil
13:30 – 15:30 Breakout Table Discussions (2+)
- Principles and modeling of equitable resilience and sustainable urban systems (LN)
- Equitable resilience in planning and design practice (MAO/JS)

15:30 – 16:00 Report Out

16:00 – 16:15 Concluding Remarks and Peer Review Feedback

PREPARATORY NOTES AND SELECTED READINGS FOR EACH SESSION

Session 1: Urban Ecology, Society and Resilient Design

This integrative session is framed around three topics and challenges: 1) state-of-the-debate in equitable resilience theory and practice; 2) implications of multi-hazard vulnerability and preparedness for environmental planning and design; and 3) strengths, weaknesses, and potential for political ecology approaches to equitably resilient design. *Co-chairs: Larry Vale, Miho Mazereeuw, and Jim Wescoat.*

Equitable resilience in theory and practice. The first theme will provide an overview of the state-of-the-debate in equitable resilience theory and practice. This topic introduces participants to the theme of equitable resilience. It traces the origins of the term, its current usage, and where it is headed. It asks what frontiers of equitable resilience need to be investigated next? The group will discuss challenges of defining equitable resilience -- can it be defined at all? -- and how its theorization can affect actionable work with vulnerable communities. It engages critiques of current attempts at both defining and doing equitable resilience from multiple perspectives (e.g. critiques of resilience as yet another line of neoliberalism). Reconciling a constructivist position with these criticisms and with community realities on-the-ground is a major challenge for this discussion.

Multi-hazard vulnerability and preparedness in environmental planning and design. The second theme focuses on multi-hazard mitigation, which goes beyond the 20th century single-hazard reactionary approach. This discussion will consider what new hazards haven't been adequately understood or integrated into assessments and whether we over plan or under plan for specific hazards. It will discuss the tools, methods, and approaches necessary to adequately assess, rank, and plan for the broad spectrum of hazards facing cities. What gaps between science, society, and design remain? It will also consider the current shift towards disaster preparedness within the insurance industry, government agencies, and non-profits. Have these efforts substantively improved the resilience of cities? Understanding emerging hazards and the new policies and designs required to combat them is the challenge for this topic.

Political ecology of equitably resilient design. The third theme focuses on multiple scales of equitable resilience through the lens of political ecology – a field that arguably has had limited engagement with design to date. This discussion will review the origins of political ecology; its logic and strengths for addressing complex multi-scale problems; and it potential for greater creative engagement with methods of environmental planning and design.

Readings

Vale, Lawrence. "Resilient cities: Clarifying concept or catch-all cliche?." The City Reader. Routledge, 2015. 662-672.

Mazereeuw, Miho, and Elizabeth Yarina. 2017. "Emergency Preparedness Hub: Designing Decentralized Systems for Disaster Resilience." Journal of Architectural Education 71(1): 65–72.

Anguelovski, Isabelle, Linda Shi, Eric Chu, Daniel Gallagher, Kian Goh, Zachary Lamb, Kara Reeve, and Hannah Teicher. 2016. "Equity Impacts of Urban Land Use Planning for Climate Adaptation: Critical Perspectives from the Global North and South." Journal of Planning Education and Research 36 (3): 333–48.

Steil, Justin. 2018. "Antisubordination Planning." Journal of Planning Education and Research, December, 0739456X1881573. https://doi.org/10.1177/0739456X18815739.

Wescoat, JL Jr. "Political ecology of environmental risks and hazards," Routledge Handbook of Political Ecology. Eds. T. Perreault, G. Bridge, and J. McCarthy, Routledge, 2015, pp. 293-302.

Session 2: Equitable Principles and Processes of Voluntary Relocation

Due to historical and contemporary failures by state actors, there is deeply held mistrust by many communities towards state-initiated relocation (even temporary emergency evacuations). Additionally, many communities hold multi-generational or cultural-religious ties to specific lands. Leaving them can be traumatic. It is very possible that voluntary relocation led by state-actors is untenable. But so are some locations. This group will workshop solutions to these two fundamental challenges of voluntary resettlement for socially and/or economically vulnerable groups: (1) how to best enable communities to self-initiate, and (2) how to help communities appropriate new land and funding for the process within real political, regulatory, and economic environments. *Co-chairs: Balakrishnan Rajagopal, Brent Ryan, Anne Spirn & Janelle Knox-Hayes.*

The Nansen Initiative has developed equitable principles for addressing international climate-driven migration and examples of their application. The best alternative for moving vulnerable and historically disenfranchised communities to safety may be to help these community's self-initiate relocation with support from NGO's, research institutions with long-standing relationships, and networks of communities that share these strategies. Scaling relocation planning will be challenging given the number of communities at risk and the complex social relations and dynamics that are involved. Relevant processes include self-assessing vulnerability, making informed decisions on timing to leave, generating actionable plans that are likely to succeed (e.g. protect cultural values), and ensuring just outcomes for members within the community. Nevertheless, examples of successful self-initiated relocation (SIR) do exist.

Climate change and coastal relocation. Sea-level rise of 1.8m is projected to displace 13.1 million Americans and stress unprepared inland cities. Myriad floodplain communities face either catastrophic flood disasters or increasing nuisance flooding. Relocation of vulnerable households and resettlement of vulnerable communities are increasingly needed to mitigate the impacts of climatic hazards. Government buy-out programs aimed at helping households adapt often focus on property owners, leaving out disadvantaged tenant communities and increasing their exposure to risk. Currently, the US government has no agency, policy, or funding specifically dedicated to helping relocate climate affected lower-income and socially vulnerable communities.

Comparative intra- and inter-city relocation. Committee members working on these issues will introduce the challenges of comparative case study research, both of relocation processes of communities within cities (e.g., Philadelphia) and of communities seeking to move to a new location (e.g., Biloxi MS). Workshop organizers are involved in many cases that involve relocation and resettlement (e.g., in New England, Florida, Mississippi, Pennsylvania, Texas, and southern California; and internationally in Haiti, India, Japan, the Philippines, Puerto Rico and Tajikistan). Workshop participants will bring many more cases to the discussion. The discussion will focus on advancing comparative theory and methods in this field.

Readings

Kälin, Walter. 2015. "The Nansen Initiative: Building Consensus on Displacement in Disaster Contexts." Forced Migration Review, no. 49. https://ora.ox.ac.uk/objects/uuid:b4df1465-08bc-4474-925a-7416ba1fd98e.

Nansen Initiative online at: https://www.nanseninitiative.org/

Marino, Elizabeth. 2018. "Adaptation Privilege and Voluntary Buyouts: Perspectives on Ethnocentrism in Sea Level Rise Relocation and Retreat Policies in the US." Global Environmental Change 49 (March): 10–13. https://doi.org/10.1016/j.gloenvcha.2018.01.002.

McAdam, Jane, and Elizabeth Ferris. 2015. "Planned Relocations in the Context of Climate Change: Unpacking the Legal and Conceptual Issues." Cambridge Journal of International and Comparative Law 4 (1): 137> – 166. https://doi.org/10.7574/cjicl.04.01.137.

Hino, Miyuki, Christopher B. Field, and Katharine J. Mach. 2017. "Managed Retreat as a Response to Natural Hazard Risk." Nature Climate Change 7 (5): 364–70. https://doi.org/10.1038/nclimate3252.

Session 3: Equitable Access to Resilient Technologies, Data, and Resources

Equity is sometimes defined in terms of opportunities to access the complex couplings of data, infrastructure, technology, and resources that affect social well-being. Data and technology play increasing roles in improving the justice of resource access and allocation. Information is also crucial for helping citizens anticipate, plan, and respond to impacts of climate-change. Ensuring equitable opportunities and outcomes for vulnerable populations during the transition to sustainable and resilient cities depends in large measure upon access to the benefits of technologies, data, space and resources across the rural-urban gradient. *Co-chairs: Sarah Williams, Sheila Kennedy, Alan Berger, and Rafi Segal.*

Access to Data. Trends in data access are very much going in the wrong direction. Climate and environmental data are increasingly controlled and monetized by private entities, even though they are often generated by citizens using public infrastructure. Costly access to data affects how research is designed, arguably to the detriment of vulnerable populations in favor of more affluent organizations and social groups. Understanding risks and adaptation planning by vulnerable populations is weakened, leading to worse outcomes for communities already at higher risk from the legacy of environmental and spatial injustice.

Access to Technology. Ensuring access to information and resources depends upon an affordable and widely available mix of low, medium, and high-fi technologies when planning for equitable resilience. The technologies of architecture, planning, and urban design range from building materials to regional infrastructural systems. Knowing what technologies and infrastructures can be relied upon during disasters in vulnerable communities is a critical issue. Knowing what technologies may need to be brought in to help facilitate recovery, and what institutions are best suited to do so, is also vital.

Access to Space and Resources. It has long been known that resilience depends upon access to fundamental natural resources such as water, land, energy, housing, food, etc. However, only rarely have societies ensured equitable access to these resources. Access to safe drinking water supplies within the service areas of late 20th c. U.S. cities came close in some cities – though that may be devolving in the 21st century as witnessed by drinking water crises in Flint, MI, Newark, NJ, and countless rural towns. By comparison, land holdings are increasingly concentrated, with the exception of hazardous lands, which are systematically left for poor and marginalized social groups. These issues need to be framed in spatial design terms.

Readings

Cutter, Susan L., Lindsey Barnes, Melissa Berry, Christopher Burton, Elijah Evans, Eric Tate, and Jennifer Webb. 2008. "A Place-Based Model for Understanding Community Resilience to Natural Disasters." Global Environmental Change, Local evidence on vulnerabilities and adaptations to global environmental change, 18 (4): 598–606. https://doi.org/10.1016/j.gloenvcha.2008.07.013.

Ford, James D., Simon E. Tilleard, Lea Berrang-Ford, Malcolm Araos, Robbert Biesbroek, Alexandra C. Lesnikowski, Graham K. MacDonald, Angel Hsu, Chen Chen, and Livia Bizikova. 2016. "Opinion: Big Data Has Big Potential for Applications to Climate Change Adaptation." Proceedings of the National Academy of Sciences 113 (39): 10729–32. https://doi.org/10.1073/pnas.1614023113.

Landry, Jean-Noé, Keira Webster, Bianca Wylie, and Pamela Robinson. n.d. "How Can We Improve Urban Resilience with Open Data?," 56.

Overpeck, Jonathan T., Gerald A. Meehl, Sandrine Bony, and David R. Easterling. 2011. "Climate Data Challenges in the 21st Century." Science 331 (6018): 700–702. https://doi.org/10.1126/science.1197869.

Ross, Tracey. 2013. "A Disaster in the Making: Addressing the Vulnerability of Low-Income Communities to Extreme Weather." Center for American Progress.

Session 4: Convergence of Equitable Resilience Planning and Sustainable Urban Systems.

Using conversations from the first three sessions, this session will seek to define a clear trajectory for future research that addresses these questions about the convergence of ER and SUS. It will consider ER-SUS solutions at the planning scale and the individual project scale-it will study the problem from top-down, side-by-side, and bottom-up perspectives. This panel acknowledges the equal importance of first-principle, research-based approaches and self-reported, community-based needs assessments. The goal is to integrate and link across domains, scales, actors, and conceptual framings. *Co-chairs: Mary Anne Ocampo, Les Norford, and Justin Steil.*

Filling out the conversation on ER-SUS, two new themes will be introduced during this panel: 1) First principles for ER-SUS, and 2) The praxis of ER-SUS. These themes compliment the side-by-side, Ecology-Society-and-Design approach introduced in panel 1 and developed in panels 2, and 3. They strive to ensure that the cultures of research and practice as well as the themes of ER and SUS converge

First principles for ER-SUS asks how the laws of thermodynamics, ecology, economics, and of complex-adaptive-systems can lead to cities that are or are not sustainable, adaptive, resilient, or equitable. Is there a development path that can simultaneously decrease the need for energy and materials while increasing multi-hazard resilience and collective quality of life? If not, what are the trade-offs, and for whom?

Second, Praxis considers the ways in which theory and knowledge are transferred to and from academia, through the political-ecology of real-world action, and to the consultants and design firms that strive for ER-SUS solutions on the ground. This theme reflects on the role of design to improve the ER-SUS functioning of cities and the role of practitioners within the larger ER-SUS framework. It reflects upon and strives to go beyond MIT's traditions of reflective practice. It highlights and sharpens ethical obligations towards citizens, and societies as well as clients and disciplines. The need to disrupt business-as-usual in student education and on-the-job training must also be considered to anticipate the increasing need for ER-SUS based designs in future projects.

Readings

Ahern, Jack. 2011. "From Fail-Safe to Safe-to-Fail: Sustainability and Resilience in the New Urban World." Landscape and Urban Planning, Landscape and Urban Planning at 100, 100 (4): 341–43. https://doi.org/10.1016/j.landurbplan.2011.02.021.

Bettencourt, Luis, and Geoffrey West. 2010. "A Unified Theory of Urban Living." Nature 467 (7318): 912–13. https://doi.org/10.1038/467912a.

Fiksel, Joseph. 2006. "Sustainability and Resilience: Toward a Systems Approach." Sustainability: Science, Practice and Policy 2 (2): 14–21. https://doi.org/10.1080/15487733.2006.11907980.

Gray, Stephen F., and Mary Anne Ocampo. 2018. "RESILIENT IMAGINARIES: SOCIO-ECOLOGICAL URBAN DESIGN IN METRO MANILA, THE PHILIPPINES." Landscape Architecture Frontiers 6 (4): 98–113. https://doi.org/10.15302/J-LAF-20180410.

Kennedy, Christopher. 2012. "A Mathematical Description of Urban Metabolism." In Sustainability Science, 275–91. Springer, New York, NY. https://doi.org/10.1007/978-1-4614-3188-6_13.

Marchese, Dayton, Erin Reynolds, Matthew E. Bates, Heather Morgan, Susan Spierre Clark, and Igor Linkov. 2018. "Resilience and Sustainability: Similarities and Differences in Environmental Management Applications." Science of The Total Environment 613–614 (February): 1275–83. https://doi.org/10.1016/j.scitotenv.2017.09.086.

Ramaswami, Anu, Armistead G. Russell, Patricia J. Culligan, Karnamadakala Rahul Sharma, and Emani Kumar. 2016. "Meta-Principles for Developing Smart, Sustainable, and Healthy Cities." Science 352 (6288): 940–43. https://doi.org/10.1126/science.aaf7160.

Steil, Justin. 2018. "Antisubordination Planning." Journal of Planning Education and Research, December, 0739456X1881573. https://doi.org/10.1177/0739456X18815739.